

National Rivers and Streams Assessment 2008-2009
Intensification of the Assessment of the Lower Mississippi River
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1) EPA Office of Water is basing their national assessments on EMAP research. The science and practice of environmental assessment have been advanced by research done by the EPA Office of Research and Development's (ORD) Environmental Monitoring and Assessment Program (EMAP). In short, the condition of a resource can be estimated from key chemical, physical, and biological measurements at relatively few sites. It is analogous to a public opinion survey where the responses of a few people provide estimates for the entire



population. EMAP's statistical sampling designs and biological indicators are well developed. The Office of Water (OW) has adopted them for its national assessments of aquatic resources.

2) A unified design and field methods for all flowing waters was developed for the National Rivers and Streams Assessment (NRSA). OW, ORD, and state participants decided that the NRSA should use a single design for all streams and rivers – including great rivers. There was no reason to exclude great rivers other than reluctance by states to sample them. A unified design and field methods would make sample collection and data analysis more efficient and the assessments more meaningful. NRSA developed suitable field methods for the large range of stream sizes, types, and conditions expected to be encountered at the 2000 sites across the country in 2008-2009. The objective of NRSA is to estimate chemical, physical, and biological conditions of all flowing waters in each of nine ecoregions and, by aggregation, nationally. In addition, the conditions of urban rivers and streams will be assessed.

3) The EMAP-GE is funding an intensification of the NRSA to produce an assessment of the Lower Mississippi River. The experience gained from the EMAP-Great River Ecosystems (EMAP-GRE) on the Upper Mississippi, Ohio, and Missouri Rivers showed that great rivers could be sampled safely and efficiently. EMAP-GRE is funding additional NRSA sampling of the Lower Mississippi River from the Ohio River confluence to the Gulf of Mexico. Approximately 60 sites will be sampled by crews from state agencies in Louisiana and Mississippi and the USGS in Arkansas and Missouri. NRSA field methods will work even in great rivers with deep channels, swift currents, barge traffic, and leveed shorelines. In addition to the NRSA indicators, samples of phytoplankton, sediment toxicity, invertebrate assemblages on snags, and other contaminants will be measured on the Lower Mississippi River.

4) Results of the Lower Mississippi River intensification will contribute to the NRSA's regional, national, and river-specific assessments, with emphasis on conditions in urban areas along the river. Characterizing the response of biological assemblages and nutrient concentrations to gradients of environmental stressors in the river should improve our understanding of how conditions in the river basin affect conditions in the river and ultimately, in the Gulf of Mexico. This work will increase capacity of participating state agencies to sample large rivers.